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Rule 1114
Wood Products Coating Operations

(A) General

(1) Purpose

(a) The purpose of this Rule is to limit the emission of Volatile Organic Compounds from Wood Products Coating Application Operations.

(2) Applicability

(a) This Rule applies to Wood Products Coating Application Operations within the Mojave Desert Air Quality Management District.

(B) Definitions

(1) For the purposes of this rule, the following definitions shall apply:

(a) "Adhesive" - any substance that is capable of bonding surfaces together by attachment.

(b) "Aerosol Coating Product" - a pressurized Coating product that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application.

(c) "Air Pollution Control Officer" (APCO) - the person appointed to the position of Air Pollution Control Officer of the District pursuant to the provisions of California Health & Safety Code §40750, and his or her designee.

(d) "Binders" - non-volatile polymeric organic materials (resins) which form the surface film in Coating applications.

(e) "Capture Efficiency" - the ratio, expressed as a percentage, of the weight of the VOC in the effluent stream entering the control device to the weight of VOC emitted from Wood Products Coating Application Operations, both measured simultaneously, and calculated by the following equation:

Capture Efficiency = $[W_c/W_e] \times 100$

Where: W_c = weight of VOC entering control device
W_e = weight of VOC emitted

(f) "Clear Sealer" - a Coating containing Binders, but not opaque pigments, which seals the Wood Products prior to application of the subsequent Coatings.

(g) "Clear Topcoat" - a Coating which contains resins and Binders but not opaque pigments and which is specifically formulated to form a transparent or translucent solid protective film.

(h) "Coating" - a material which is applied to a surface and which forms a film in order to beautify and/or protect such surface.

(i) "Coating Application Operations" are a combination of Coating application steps which may include use of spray guns, flash-off areas, spray booths, ovens, conveyors, and/or other equipment operated for the purpose of applying Coating materials.

(j) "Compliance Assurance Monitoring" - total equipment, mechanism(s), and/or technique(s) used to demonstrate and insure compliance with control device efficiency requirements. Such monitoring is used to analyze and/or provide a permanent record of process parameters, such as temperatures, pressures and flow rates.

(k) "Composite Wood" - a manufactured material consisting of tightly compressed wood fibers bonded with resins which includes, but is not limited to, particleboard, fiberboard and hardboard.

(l) "Control Device Efficiency" - the ratio, expressed as a percentage, of the weight of the VOC removed by the control device from the effluent stream entering the control device to the weight of VOC in the effluent stream entering the control device, both measured simultaneously, and calculated by the following equation:

Control Device Efficiency = $[(W_c - W_a)/W_c] \times 100$
Where: W_c = weight of VOC entering control device
W_a = weight of VOC discharged from control device

(m) "Conventional Air Spray" - a spray coating method in which the Coating is atomized by mixing it with compressed air at an air pressure greater than 10 pounds per square inch (gauge) at the point of atomization. Airless and air assisted airless spray technologies are not Conventional Air Spray because the Coating is not atomized by mixing it with compressed air.

(n) "Custom Replica Furniture" - new, made-to-order furniture that looks like antique furniture, rather than new furniture. It features detailed wood carvings and bruising of the wood to simulate antique furniture.

(o) "Dip Coat" - to dip an object into a vat of Coating material and drain off any excess Coating.

(p) "Exempt Compounds" - those compounds listed in 40 CFR 51.100(S)(1).

(q) "Filler" - a material which is applied to a Wood Product, and whose primary function is to build up, or fill the voids and imperfections in the Wood Product to be coated.

(r) "Flow Coat" - to coat an object by flowing a stream of Coating over an object and draining off any excess Coating.

(s) "Grams of VOC Per Liter of Coating Less Water and Less Exempt Compounds" (VOC Content) - the weight of VOC per combined volume of VOC and Coating solids,calculated by the following equation:

$$\text{Grams of VOC per liter of coating less water and less exempt compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:
W_s=weight of volatile compounds in grams
W_w=weight of water in grams
W_{es}=weight of exempt compounds in grams
V_m=volume of material in liters
V_w=volume of water in liters
V_{es}=volume of exempt compounds in liters

(t) "Grams of VOC Per Liter of Material" - the weight of VOC per volume of material, calculated by the following equation:

$$\text{Grams of VOC per liter of material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Where: W_s=weight of volatile compounds in grams
W_w=weight of water in grams
W_{es}=weight of exempt compounds in grams
V_m=volume of material in liters

(u) "High-Solids Stains" - Stains containing more than 1 pound of solids per gallon by weight.

(v) "High-Volume Low-Pressure (HVLP) Spray" - to spray a coating by means of a gun that operates between 0.1 and 10.0 psig air pressure, not to exceed 10 psig, measured at the air cap of the Coating application system, and a permanent liquid Coating pressure of not more than 50 psig.

(w) "Ink" - a fluid that contains dyes and/or colorants and is used to make markings but not to protect surfaces.

(x) "Low-Solids Stains, Toners and Washcoats" - Stains, Toners and Washcoats containing 1 pound of solids per gallon, or less, by weight.

(y) "Mold-Seal Coating" - the initial Coating applied to a new mold or repaired mold to provide a smooth surface which, when coated with a mold release coating, prevents products from sticking to the mold.

(z) "Multi-Colored Coating" - a Coating which exhibits more than one color when applied, and which is packaged in a single container and applied in a single coat.

(aa) "Overall Control Efficiency" (C.E.) - the ratio, expressed as a percentage, of the weight of the VOC removed by the emission control system to the total weight of VOC emitted from Coating Application Operations, both measured simultaneously, calculated by the following equations:

$C.E. = [(W_c - W_a)/W_e] \times 100$
C.E. = [(Capture Efficiency) x (Control Device Efficiency)/100

Where: W_c = weight of VOC entering control device
W_a = weight of VOC discharged from the control device
W_e = weight of VOC emitted

(bb) "Panel" - a flat piece of wood or Wood Products, usually rectangular, and used inside homes and mobile homes for wall decorations.

(cc) "Pigmented Primers, Sealers and Undercoats" - opaque Coatings which contain binders and colored pigments which are formulated to hide the wood surface, that are applied prior to the topcoat to provide a firm bond, level the wood product surface, or seal the wood product surface.

(dd) "Pigmented Topcoat" - a final opaque Coating which contains binders and colored pigments, and is specifically formulated to hide the wood surface and form a solid protective film.

(ee) "Rate Per Day" - the amount applied between 12:00 a.m. and 11:59 p.m. on the same calendar day.

(ff) "Reactive Diluent" - a liquid which is a VOC during application and one which, through chemical or physical reactions such as polymerization, becomes an integral part of a finished Coating. For Coatings that contain Reactive Diluents, the VOC Content of the Coating is determined after curing. The VOC Content shall be calculated by the following equation:

$$\text{VOC Content, Coatings that contain Reactive Diluents} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where: W_s=weight of volatile compounds not consumed during curing in grams
W_w=weight of water not consumed during curing in grams
W_{es}=weight of exempt compounds not consumed during curing in grams
V_m=volume of the material prior to reaction in liters
V_w=volume of water not consumed during curing in liters
V_{es}=volume of exempt compounds not consumed during curing in liters

(gg) "Refinish" - the recoating of Wood Products that have been previously coated.

(hh) "Repair Coating" - a Coating used to re-coat portions of a product which has sustained mechanical damage to the Coating following normal painting operations.

(ii) "Roll Coater" - a series of mechanical rollers that forms a thin Coating film on the surface of roller, which is applied to a substrate by moving the substrate underneath the roller.

(jj) "Shutter" - an exterior screen or cover for a window, usually hinged and often fitted with louvers. This includes non-functional Shutters.

(kk) "Simulated Wood Materials" - materials, such as plastic, glass, metal, that are made to give a wood-like appearance or are processed like Wood Products.

(ll) "Stencil Coating" - an ink or a pigmented Coating which is rolled or brushed onto a template or stamp in order to add identifying letters and/or numbers to Wood Products.

(mm) "Stains" - Coatings which are formulated to change the color of a surface but not completely conceal the surface, so that the grain is still visible.

(nn) "Stripper" - a liquid used to remove cured Coatings, cured Inks and/or cured Adhesives.

(oo) "Theoretical Potential Emissions" - the maximum capacity of a facility to emit any air pollutant under its physical and operational design, based on 8,760 hours of operation per year and before the use of air pollution abatement equipment.

(pp) "Toner" - a Wash Coat which contains Binders and dyes or pigments to add tint to a coated surface.

(qq) "Touch-up Coating" - a Coating used to cover minor Coating imperfections appearing after the main Coating operation.

(rr) "Transfer Efficiency" - the ratio of the weight of Coating solids deposited on an object to the total weight of Coating solids used in a Coating application step, expressed as a percentage.

(ss) "Volatile Organic Compound (VOC)" - any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and Exempt Compounds.

(tt) "Wash Coat" - a Coating that contains no more than 1.0 pounds of solids per gallon, by weight, which is used to seal wood surfaces, prevent undesired staining, and control penetration.

(uu) "Wood Products" - those surface coated room furnishings which include cabinets (kitchen, bath, and vanity), tables, chairs, beds, sofas, shutters, art objects, and any other coated object made of solid wood and/or Composite Wood and/or made of Simulated Wood Material used in combination with solid wood or Composite Wood.

(C) Requirements

(1) VOC Content of Coatings & Adhesives

(a) Any owners and/or operators of Wood Products Coating Application Operations shall not apply any Coating or Adhesive to a Wood Product which has a VOC Content, including any VOC-containing material added to the original Coating supplied by the manufacturer, which exceeds the applicable limit specified below, unless emissions to the atmosphere are controlled by air pollution abatement equipment with an Overall Control Efficiency of at least 85 percent. Any Coating subject to this rule that meets either of the two VOC Content limit formats (grams per liter or lb/gal) is in compliance with this subsection.

(i)

LIMITS
Grams of VOC Per Liter of Coating,
Less Water and Less Exempt Compounds (VOC Content)

Coating	Current Limit g/L (lb/gal)	On and After 7/1/97 Column I or g/L (lb/gal)	On and After 7/1/97 Column II g/L (lb/gal)	On and After 7/1/2005 g/L (lb/gal)
Clear Sealers	680 (5.7)	550 (4.6)	680 (5.7)	275 (2.3)
Clear Topcoat	680 (5.7)	550 (4.6)	275 (2.3)	275 (2.3)
Pigmented Primers, Sealers and Undercoats	600 (5.0)	550 (4.6)	600 (5.0)	275 (2.3)
Pigmented Topcoats	600 (5.0)	550 (4.6)	275 (2.3)	275 (2.3)

Effective July 1, 1997, a person or facility shall use Coatings on Wood Products that comply with either all VOC Content limits in Column I or all VOC Content limits in Column II. A person or facility that applies a Pigmented Primer, Sealer or Undercoat, but not a Clear Topcoat or Pigmented Topcoat, to a Wood Product shall be subject to column I for that product.

(ii) Notwithstanding the requirements of subsection (C)(1)(a)(i), a person or facility that applies a topcoat and a primer, sealer or undercoat to a Shutter may, until July 1, 2005, choose to comply with the VOC Content limits specified below for that Shutter:

LIMITS
Grams of VOC Per Liter of Coating,
Less Water and Less Exempt Compounds (VOC Content)

Coating	g/L (lb/gal)
Clear Sealers	275 (2.3)
Clear Topcoat	680 (5.7)
Pigmented Primers, Sealers & Undercoats	275 (2.3)
Pigmented Topcoats	600 (5.0)

(iii) LIMITS

Grams of VOC Per Liter of Coating,
Less Water and Less Exempt Compounds (VOC Content)

Coating	Current Limit g/L (lb/gal)	On and After 7/1/97 g/L (lb/gal)	On and After 7/1/2005 g/L (lb/gal)
Fillers	500 (4.2)	500 (4.2)	275 (2.3)
High-Solid Stains	700 (5.8)	550 (4.6)	350 (2.9)
Inks	500 (4.2)	500 (4.2)	500 (4.2)
Mold-Seal Coatings	750 (6.3)	750 (6.3)	750 (6.3)
Multi-Colored Coatings	685 (5.7)	685 (5.7)	275 (2.3)
Low-Solids Stains, Toners and Washcoats	800 (6.7)	480 (4.0)	120 (1.0)
Adhesives	250 (2.1)	250 (2.1)	250 (2.1)

(2) Transfer Efficiency

(a) A person or facility shall not apply Coatings to Wood Products subject to the provisions of this rule unless the Coating is applied with properly operating equipment, according to manufacturer's suggested guidelines, and by the use of one of the following methods:

(i) Flow Coat, or
(ii) Dip Coat, or
(iii) High-Volume Low-Pressure (HVLP) spray, or
(iv) Paint brush, or
(v) Hand roller, or
(vi) Roll Coater, or
(vii) Such other Coating application methods as are demonstrated to the Air Pollution Control Officer to be capable of achieving at least 65 percent Transfer Efficiency and for which written approval of the Air Pollution Control Officer has been obtained.

(3) Clean-up Solvent and Equipment Cleaning

(a) The requirements of this Section shall apply to any person using solvent for surface preparation and cleanup.

(i) A person shall not use an organic compound for surface preparation, except Strippers, with a VOC Content in excess of 200 grams of VOC per liter of material (1.67 pounds per gallon).

(ii) A person shall not use a Stripper on Wood Products unless it contains less than 350 grams of VOC per liter of material.

(iii) A person shall use closed, nonabsorbent containers for the storage or disposal of cloth or paper used for solvent surface preparation and cleanup.

(iv) A person shall store fresh or spent solvent in closed containers.

(v) A person shall not use organic compounds for the cleanup of spray equipment including paint lines unless equipment for collecting the cleaning compounds and minimizing their evaporation to the atmosphere is used.

(4) Prohibition of Specifications

(a) Any person shall not specify the use in the District of any Coating to be applied to any Wood Products subject to the provisions of this rule that does not meet the limits and requirements of this rule. The requirements of this paragraph shall apply to all written or oral contracts.

(5) Compliance Statement Requirement

(a) The manufacturer of Coatings subject to this rule shall include a statement of VOC Content as supplied on data sheets; including Coating components, expressed in grams per liter or pounds per gallon, excluding water and exempt solvents.

(D) Exemptions

(1) The provisions of subsections (C)(1)(a) and (C)(2)(a) of this rule shall not apply to:

(a) The use of Aerosol Coating Products.

(b) Facilities whose Rate Per Day of Coating use is less than one gallon, including any VOC-containing materials added to the original Coating as supplied by the manufacturer. Only Coatings subject to this rule shall be included in the calculation of Rate Per Day., or; Coating Application Operations that emit not more than 3 pounds of VOCs per day and not more than 200 pounds of VOCs per calendar year.

(c) Laminating of fiberglass, metal, or plastic sheets to wood Panels.

(d) The application of Coatings to musical instruments.

(e) The application of Coatings to billiard tables.

(2) The July 1, 1997 limits which are set forth in subsection (C)(1)(a) shall not apply to:

(a) Wood Products Coating Application Operations which emit not more than 3 pounds of VOC per hour, before the use of air pollution abatement equipment; **or**

(b) Wood Products Coating Application Operations which emit not more than 15 pounds of VOC per day, before the use of air pollution abatement equipment; **or**

(c) Facilities that do not exceed 10 tons per year Theoretical Potential Emissions.

(3) The provisions of subsection (C)(1)(a) shall not apply to any Refinishing operations necessary for preservation, to return the Wood Product to original condition, to replace missing furniture to produce a matching set, or to produce Custom Replica Furniture.

(4) The provisions of subsection (C)(1)(a) shall not apply to Touch-up and Repair Coatings or Stencil Coatings.

(5) For the purposes of claiming an exemption pursuant to subsections (D)(2)(a) or (D)(2)(b), hourly or daily emissions shall be considered from January 1, 1996 forward.

(6) Once a facility exceeds 3 pounds of VOC per hour, or 15 pounds of VOC per day, respectively, it will remain subject to the July 1, 1997 limits even if its emissions later fall below the applicability threshold.

(7) Notwithstanding the provisions of subsection (C)(2)(a), a person or facility may use:

(a) Any spray equipment that uses only Coatings that comply with the July 1, 2005 VOC Content limits; or

(b) Any spray equipment, except Conventional Air Spray, that uses only Coatings that contain 550 g/L, or less, of VOC Content.

(8) Any facility classified as exempt or claiming to be exempt under this section (D), shall meet the record keeping requirements of this rule so as to be able to certify the exemption status.

(E) Administrative Requirements

(1) Rule 442 Applicability

(a) Any coating, coating operation, or facility which is exempt from all or a portion of the VOC Content limits of this rule shall comply with the provisions of Rule 442 unless compliance with the limits specified in this rule are achieved.

(F) Monitoring and Records

(1) Coating Records

(a) Any person subject to Sections (C)(1)(a), (C)(3)(a), (D)(1)(b) or (D)(2) shall comply with the following requirements:

(i) The person shall maintain and have available during an inspection, a current list of Coatings in use which provides all of the Coating data necessary to evaluate compliance, including the following information, as applicable:
1. Coating, catalyst, and reducer used.
2. mix ratio of components used.
3. VOC Content of Coating as applied.

(ii) The person shall maintain records on a daily basis including:
1. Coating and mix ratio of components used in the Coating; and
2. quantity of each Coating applied.

(iii) The person shall maintain records on a daily basis showing the type and amount of solvent used for cleanup, surface preparation, and paint removal.

(b) Notwithstanding the provisions of subsection (F)(1)(a), a person or facility which exclusively uses Coatings formulations compliant with subsection (C)(1)(a) may maintain usage records on a monthly basis.

(2) Compliance Assurance Monitoring

(a) Each Coating Application Operation subject to subparagraph (C)(1)(a) which is using air pollution abatement equipment to meet the control requirement shall:

(i) utilize Compliance Assurance Monitoring, as approved by the APCO. Each monitoring device(s), mechanism and/or technique shall be calibrated/maintained in a manner approved by the APCO; and

(ii) maintain and produce daily records of key system operating parameters and maintenance procedures which will demonstrate continuous operation and compliance of the air pollution abatement equipment during periods of emissions-producing activities. Key system operating parameters are those necessary to ensure compliance with VOC content of coating requirements, such as temperatures, pressures and flow rates.

(b) Compliance with subsection (C)(1)(a) shall be determined by compliance testing as prescribed in subsections (G)(2)(b) and (c) and/or by evaluating Compliance Assurance Monitoring data.

(3) All records for the previous five year period maintained and produced pursuant to this Section shall be retained and available for inspection by the APCO upon request.

(G) Test Methods

(1) A violation of the limits contained in this Rule as determined by any one of these test methods shall constitute a violation of this Rule.

(2) The following specified test methods shall be used to determine compliance with the provisions of this Rule.

(a) Determination of VOC Content and solids content: Samples of Coatings and solvent as specified in Section (C)(1)(a) shall be analyzed as prescribed by EPA Reference Method 24 for VOC Content and solids content (without correction for Exempt Compounds) and ASTM D4457-

85, or ARB Method 432 for determination of emissions of Exempt Compounds. Perfluorocarbon compounds shall be assumed to be absent from a product or process unless a manufacturer or facility operator identifies the specific individual compounds (from the broad classes of perfluorocarbon compounds) and the amounts present in the product or process and provides a test method acceptable to EPA and ARB which can be used to quantify the specific compounds.

(b) Determination of Emissions: For any owners and/or operators who choose to comply with the provisions of Section (C)(1)(a) through the use of air pollution abatement equipment, emissions of VOCs shall be measured as prescribed by EPA Reference Method 25 for determination of VOC emissions (without correction for exempt compounds) and EPA Method 18, or ARB Method 422 for measuring emission of exempt compounds.

(c) Determination of Overall Control Efficiency: The Overall Control Efficiency of air pollution abatement equipment shall be determined by a minimum of three sampling runs conducted according to USEPA's technical guidance document "Guidelines for Determining Capture Efficiency", January 9, 1995.

(3) The following test method is recommended for use in determining Transfer Efficiency of alternative application methods: Demonstration of Transfer Efficiency of alternative application methods subject to subsection (C)(2)(a) shall be conducted in accordance with South Coast Air Quality Management District's "Spray Equipment Transfer Efficiency Test Procedure for Equipment User" (May 24, 1989).

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